INSTRUCTIONS

JVC

BR-S411E
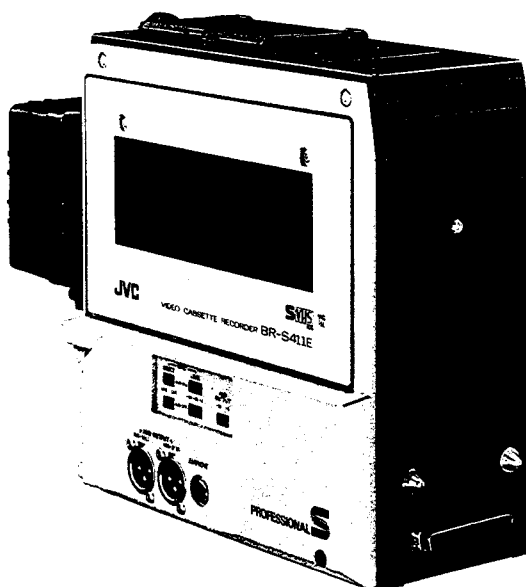
VIDEO CASSETTE RECORDER
MAGNETOSCOPE A CASSETTE
VIDEOCASSETTENRECORDER

S-VHS 625 VHS PAL Hi-Fi HQ High Quality

CONTENTS

PRECAUTIONS

Handling and storage
● Avoid using the recorder under the following conditions:
- extremely hot, cold or humid places,
- dusty places,
- near appliances generating strong magnetic fields,
- places subject to vibrations, and
- poorly ventilated places.
● Be careful of moisture condensation.
Avoid using the recorder immediately after moving it from
a cold place to a warm place or soon after heating a room
which was cold. The water vapor in warm air will condense
on the still-cold video head drum and tape guides and may
cause damage to the tape and the recorder.
● Handle the recorder carefully.
  ● Do not block the ventilation openings.
  ● Do not place anything heavy on the recorder.
  ● Do not place anything which might spill and cause
 trouble on the top cover of the recorder.

Video cassettes
● This recorder employs S-VHS and VHS cassettes only.
  S-VHS: SE-180 for 180 minutes, SE-120 for 120 minutes.
  and SE-60 for 60 minutes of recording.
  VHS: E-240 for 240 minutes, E-180 for 180 minutes,
  E-120 for 120 minutes, E-60 for 60 minutes, and
  E-30 for 30 minutes of recording.
● Video cassettes are equipped with a safety tab to prevent
accidental erasure. When the tab is removed, recording can
not be performed. If you wish to record on a cassette
whose tab has already been removed, use adhesive tape to
block the hole.

Safety tab
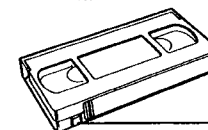
● Avoid exposing the cassettes to direct sunlight. Keep them
away from heaters.
● Avoid extreme humidity, violent vibrations or shocks,
strong magnetic fields (near a motor, transformer or mag-
net) and dusty places.
● Place the cassettes in cassette cases and position vertically.

FEATURES

More than 400 lines of horizontal resolution
Conforming to the S-VHS format, the BR-S411E offers a
picture with well over 400 lines of horizontal resolution which
renders dramatic improvements in detail, clarity and
presence, and fully justifies use in professional applications.
As a camcorder or a portable
The BR-S411E forms a compact camcorder in combination
with a specific camera, or can be used as a separate portable
recorder together with an existing camera using an optional
VTR adapter.
Systems flexibility
Equipped with output connectors for both the composite and
separated Y/C signals*, the BR-S411E flexibly interfaces
with other video equipment. High-quality software programs
can be produced using the BR-S411E as the master player
and a current VHS or 3/4" U-VCR editing recorder (with or
without Y/C 443 connectors), together with an optionally
available editing controller. S-VHS editing recorders will
further enhance and simplify editing.
Rotary Erase Head
A rotary erase head ensures distortion-free assembled edits
by reducing chroma beats.

● VITC (vertical interval time code) recording capability with
SA-R100E Time Code Generator (optional).
● HQ (High Quality) circuitry incorporated for operation in
the VHS PAL mode.
● Rugged construction using aluminum diecast body.
● Shuttle search function.
● Audio level meters and LCD electronic counter.
● Independent inputs for Hi-Fi and normal audio.
● Hi-Fi audio recording can be defeated.
● Four audio recording level controls, allowing control of
both Hi-Fi and normal audio for each channel.
● XLR input and output.
● Dolby** noise reduction system for normal audio.
● Switchable between VHS and S-VHS modes (SP mode
only).
● Long pause/still mechanism.
● Comprehensive warning system.

*A Y/C filtering technique incorporated under license from
Faroudja Laboratories Inc.
**Dolby noise reduction system manufactured under license
from Dolby Laboratories Licensing Corporation. Dolby and
the double-D symbol □□ are trademarks of Dolby Labor-
atories Licensing Corporation.

CONTROLS, INDICATORS AND CONNECTORS

REAR PANEL
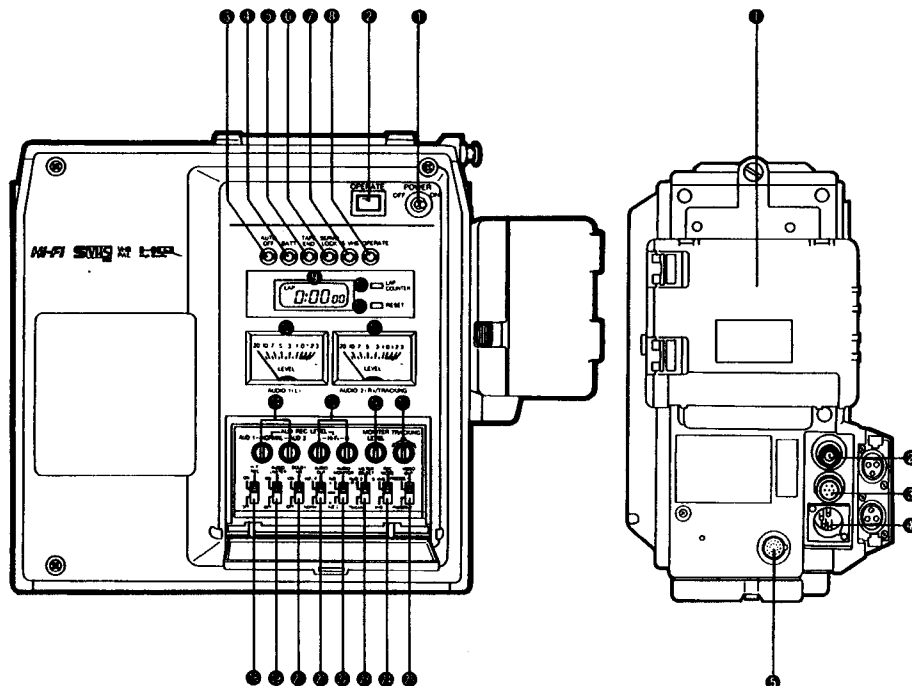
❶ POWER switch
Set to ON to turn the power on; the tape counter will be illuminated in the Lap Time mode. When used in combination with a camera or a simple editing control unit, the power is also supplied to the camera or the control unit with this switch set to ON.

❷ OPERATE switch
To make the recorder operative, press this OPERATE switch while the power is on. The OPERATE LED indicator will light. Press again to switch it off.

INDICATOR SECTION

❸ AUTO OFF indicator
This indicator lights when the capstan, drum and reel motors cease to rotate; the recorder enters the Stop mode automatically. When moisture condenses inside the recorder, this LED blinks rapidly and the recorder enters the Stop mode automatically. Refer to the chart on page 7.

❹ BATT indicator
This indicator blinks when the battery power drops to a level that needs recharging, and remains lit when the battery becomes completely depleted. Refer to the chart on page 7.

❺ TAPE END indicator
Starts blinking shortly before the tape end, and remains lit when the tape comes to an end. This blinking time span differs slightly depending on the tape length of the cassette used. Refer to the chart on page 7.

❻ SERVO LOCK indicator
Remains off while the drum and capstan servos are locked. When the servos are out of their lock ranges or when there is no input signal during recording, the indicator blinks at intervals of 1/4 second. During playback, it is always off. Refer to the chart on page 7.

❼ S-VHS mode indicator
Lights during recording in the S-VHS MODE (selected with the REC MODE switch) and during playback in the S-VHS mode (selected through automatic detection).

❽ OPERATE indicator
Lights when the OPERATE switch is pressed while the power is on.

❾ Tape counter
Switchable between tape counter (from "0000" to "9999") and lap timer. In the Lap Timer mode, "LAP" appears at the left-hand corner of the display and a 5-digit display shows the amount of tape that has run, in hours, minutes and seconds.

❿ LAP/COUNTER button
To switch the display between lap timer and tape counter.

⓫ RESET button
To reset the tape counter to "0000" or the lap timer to "0:00.00".

⓬ AUDIO-1(L) LEVEL meter
Shows the normal audio-1 or Hi-Fi left-channel level during recording and playback. Switching between normal and Hi-Fi audio is performed with the AUDIO OUT select switch.

⓭ AUDIO-2(R) LEVEL/TRACKING meter
Shows the normal audio-2 or Hi-Fi right-channel level during recording and playback when the METER SELECT switch is set to AUD-2(R). Switching between normal and Hi-Fi audio is performed with the AUDIO OUT select switch. When the METER SELECT switch is set to TRACKING, this shows the tracking during playback.

SUB CONTROLS

⓮ AUD REC LEVEL NORMAL AUD-1/AUD-2 controls
To adjust the normal audio recording level for audio-1 and audio-2 manually, referring to the audio level meters.

⓯ AUD REC LEVEL Hi-Fi L/R controls
To adjust the Hi-Fi audio recording level for left channel and right channel manually.

⓰ MONITOR LEVEL control
Turn to adjust the earphone output level.

⓱ TRACKING control
Noise bars may be seen or breaks in the Hi-Fi sound may be heard, when playing back a tape that was recorded with a different recorder. To correct this, turn the TRACKING control so that the needle of the TRACKING meter makes its maximum deflection.

⓲ Hi-Fi REC switch
ON: To record sound on the Hi-Fi audio track.
OFF: To defeat the recording of sound on the Hi-Fi audio track.

⓳ AUDIO LIMITER switch
Set to ON to activate the limiter circuit for the normal audio. The limiter circuit is switched on or off simultaneously for the audio-1 and audio-2 channels. Manual level control is possible even when the limiter circuit is switched on.

⓴ DOLBY NR switch
Set to ON to activate the noise reduction circuit for the normal audio track. To play back a tape which was recorded with the DOLBY NR switch set to ON, be sure to set the DOLBY NR switch to ON.

㉑ AUDIO OUT select switch
Selects the audio signal to be output from the AUDIO OUT connectors, earphone jack or checked on the audio level meters.
Hi-Fi: To check the Hi-Fi audio signals.
NORM: To check the normal audio signals.

㉒ AUDIO MONITOR switch
Selects the audio signal to be output via the earphone jack.
AUD-1 (L): To monitor the audio signal on audio-1 or the left channel.
MIX: To monitor the mixed sound of audio-1 (L) and audio-2 (R).
AUD-2 (R): To monitor the audio signal on audio-2 or the right channel.

㉓ METER SELECT switch
Selects the function of the AUDIO-2 (R)/TRACKING meter.
AUDIO-2 (R): To show the audio level of normal audio-2 or Hi-Fi audio right channel.
TRACKING: To show the playback FM signal level.

㉔ REC MODE switch
Selects the recording mode of the video signal.
S-VHS: To record in the S-VHS mode using S-VHS tape.
VHS: To record in the VHS mode.

㉕ VIDEO OUT select switch
PROCESS-1: Normally set to this position.
PROCESS-2: In this position, the playback pictures are slightly affected by noise, but the recorded pictures have better detial. Use this position when using the BR-S411E as a feeder in editing.

❶ Battery holder
Insert an exclusive battery pack (NB-G1U) into this holder.

❷ VIDEO OUT connector (BNC)
Line output connector for composite video signal.

❸ Y/C 443 output connector (7-pin)
To deliver Y/C 443 video signals (separated luminance and chroma signals).

❹ DC IN 12 V connector
Connect the AA-G10E battery charger/power adapter (optional) for AC operation.

❺ TIME CODE connector (10-pin)
Connect the SA-R100E Time Code Generator (optionally available) when you wish to record the VITC (vertical interval time code).

JVC   VIDEO CASSETTE RECORDER BR-S411E   PROFESSIONAL **S**
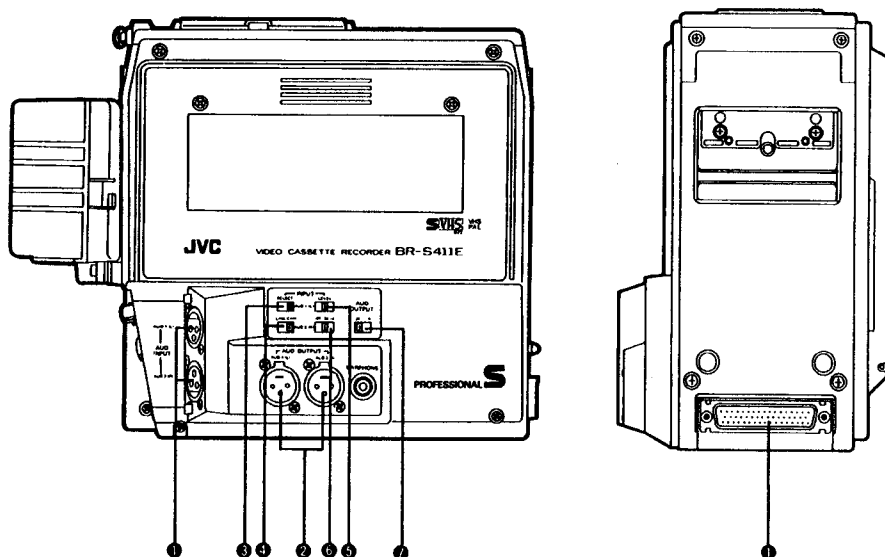
FRONT PANEL

❶ AUDIO INPUT connectors (AUD-1/L, AUD-2/R)
Audio input connectors for Normal and Hi-Fi audio when the AUDIO INPUT SELECT switch ❸ or ❹ is set to LINE for each channel.

❷ AUDIO OUTPUT connectors (AUD-1/L, AUD-2/R)
The audio signal (Hi-Fi or Normal) selected with the AUDIO OUT select switch ❽ on the rear panel is output via these connectors.

❸ AUD-1 (L) INPUT select switch
Selects the input signal (camera or Line AUD-1/L of AUDIO IN connector ❶) to be recorded.

❹ AUD-2 (R) INPUT select switch
Selects the input signal (camera or Line AUD-2/R of AUDIO IN connector ❶) to be recorded.

❺ AUD-1 (L) INPUT level select switch
Select -60 dB, -20 dB or +4 dB according to the level of the AUD-1/L input signal.

❻ AUD-2 (R) INPUT level select switch
Select -60 dB, -20 dB or +4 dB according to the level of the AUD-2/R input signal.
Note: -60 dB: Audio recording from microphone.
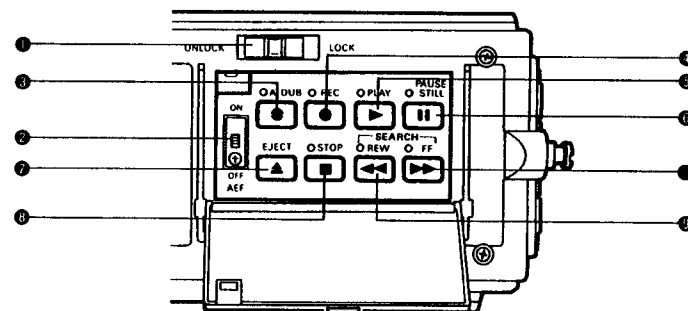-20/+4 dB: Audio recording from VTR or other audio equipment.

❼ AUDIO OUTPUT level select switch
Select -20 dB or -6 dB according to the level of the audio output signal. The level is switched for both Left/Right audio channels simultaneously.

CAMERA CONNECTOR SIDE

❶ Camera connector (50-pin)
Connect a video camera equipped with a 50-pin VTR docking connector.

❶ UNLOCK/LOCK slide knob
Slide to UNLOCK to open the control panel cover. Leave it in the LOCK position in normal shooting operation.

❷ AEF ON/OFF switch
Normally set this switch to ON. To re-set to OFF, loosen the screw and remove the stopper plate. In the OFF position, the preroll function is switched off for prompt response in recording, though the picture at the switching point between pause and restart is distorted.

❸ A DUB button
To start audio dubbing, press the PLAY button while holding the A DUB button depressed. The A DUB and PLAY LED indicators will light and the sound on the normal audio-2 track will be replaced by new material.

❹ REC button
To start recording (video and audio), press this button together with the PLAY button. To stop recording, press the STOP button. When the REC button is pressed together with PAUSE/STILL button, the tape is rewound for 1-3 seconds and stops in the Record-Pause mode (Recording Standby mode). Recording starts by pressing the camera's trigger.

❺ PLAY button
Press to start playback. Press together with the REC button for recording, and with the A DUB button for audio dubbing.

❻ PAUSE/STILL button
Press to stop the tape temporarily during recording or playback. The PAUSE/STILL LED indicator will light. When this button is pressed during recording, the tape is rewound for 1.3 seconds and stops in the Record-Pause

mode (when AEF mode is on). When the PLAY button is pressed, or triggered by the camera's start/stop button, the tape starts running and recording starts at the position where the previous recording stopped. When this button is pressed during playback, a still picture is obtained. For frame advance, press it repeatedly. To resume normal playback, press the PLAY button.

❼ EJECT button
Press to lift the cassette housing. Functions only in the Stop mode. To eject the cassette in any other mode, first press the STOP button, then the EJECT button.

❽ STOP button
Press to stop the tape. When this button is pressed while the tape is running, the LED indicator lights and the tape is completely withdrawn into the cassette. This state is referred to as the Stop mode.

❾ REW button
When the button is pressed in the Stop mode, the REW LED indicator will light.
Pressing this button in the Play on Still mode enables high-speed playback at about 9 times normal in the reverse direction. During search the REW indicator will remain lit.

❿ FF button
When the button is pressed in the Stop mode, the FF LED indicator will light.
Pressing this button in the Play on Still mode enables high-speed playback at about 9 times normal in the forward direction. During search the FF indicator will remain lit.

COMPREHENSIVE WARNING SYSTEM
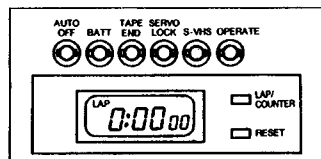
To ensure trouble-free operation and quality recordings, the BR-S411E has a comprehensive array of warning indicators. When any of the warning indicators lights or flashes, beeps can be heard in the output sound from the EARPHONE jack. With some cameras, their tally lamps are controlled by the same warning signal and present identical indications. The following chart summarizes the facts relating to the warning system.

Indication symbols:
- ○ : The LED remains lit.
- ◐ : The LED flashes at intervals of 1 second.
- ◑ : The LED flashes at intervals of 1/4 second.
- ∿∿∿∿ : Continuous warning tone is heard.
- ∿∿ ∿∿ : Intermittent beep, 1-second intervals.
- ∼ ∼ ∼ : Intermittent beep, 1/4-second intervals.

LED indicator	Indication Mode		Alarm sound[1] in the earphone	VCR operation Mode		Tally indication on camera		Remarks
	REC	PLAY	REC	REC	PLAY	BATTERY	REC	
SERVO LOCK	◑	–	∼ ∼ ∼ ∼	Continues	–	–	◑	Out of lock.
TAPE END	◐	–	∿∿ ∿∿	Continues	–	–	◐	About 2 minutes before the end of the tape.
	○	○	∿∿∿∿∿∿	Stops	Stops	–	–	Tape end.
AUTO OFF	◑	◑	∿∿∿∿∿∿	Operate OFF	Operate OFF	–	–	Capstan, drum or reel motors stop.
	○	○	∼ ∼ ∼ ∼	Stops	Stops	–	–	Condensation.[2]
BATT	◐	◐	∿∿ ∿∿	Continues	Continues	◐	◐	Slightly before the battery is depleted.
	○	○	∿∿∿∿∿∿	REC LOCK	Operate OFF	○	–	Battery depleted.

1) The alarm sound is superimposed on the audio output from the EARPHONE jack.
   Priority of earphone output: ∿∿∿∿ > ∼ ∼ ∼ > ∿∿ ∿∿ ∿∿

2) If the AUTO OFF state due to condensation occurs, dry inside the recorder.

POWER SUPPLY

Power can be supplied in two ways as required.
1. Using the NB-G1U battery pack (provided).
2. Using the AA-G10E AC power adapter/battery charger (optional)

- To remove the battery pack, open the battery compartment door and press the battery release button. The battery pack will be released. Withdraw the battery pack.
- Read the instructions on the battery pack carefully.

1. Make sure that the POWER switch of the BR-S411E is OFF.
2. Slide the battery compartment door latch of the battery holder to the right and open the door.
3. Insert the NB-G1U battery pack into the battery holder with its printed label to the left.
4. Close the door of the battery holder.
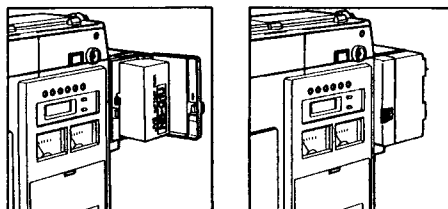
USING TWO NB-G1U BATTERY PACKS WITH AN OPTIONAL BATTERY HOLDER

When the BR-S411E is used in a camcorder configuration, one battery pack can be installed inside the provided battery holder and the other can be attached externally using an optional battery holder. Both battery packs operate in parallel to prolong the recording time.

1. Open the cover of the DC connector pocket and pull out the DC connector. Combine this connector with the DC connector of the battery holder. Then store these connectors into the pocket.
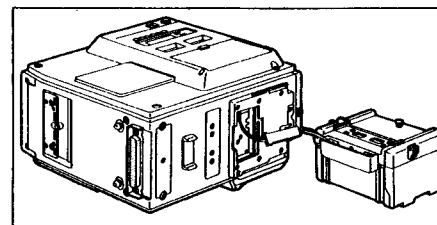

2. Mount the battery holder onto the BR-S411E and secure with the screws. Insert a battery pack into the battery holder.

Screw
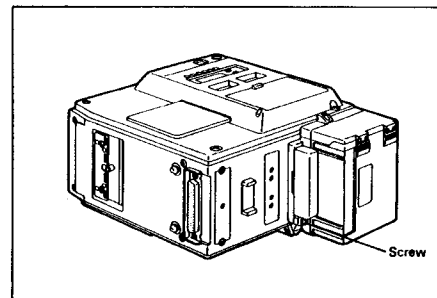
USING THE AA-G10E BATTERY CHARGER/ AC POWER ADAPTER

1. Connect the DC OUT connector of the AA-G10E to the DC IN connector of the BR-S411E using the DC cord provided with the AA-G10E.
2. Connect the power cord to the AA-G10E and plug it into an AC outlet.
3. Press the VCR button on the front panel of the AA-G10E.
4. Press the POWER button of the AA-G10E to ON.

- If the battery pack remains inside the battery holder, its power is consumed even when the AA-G10E powers the recorder. Be sure to remove the battery pack during AC operation.
- For more details refer to the instruction manual of the AA-G10E.
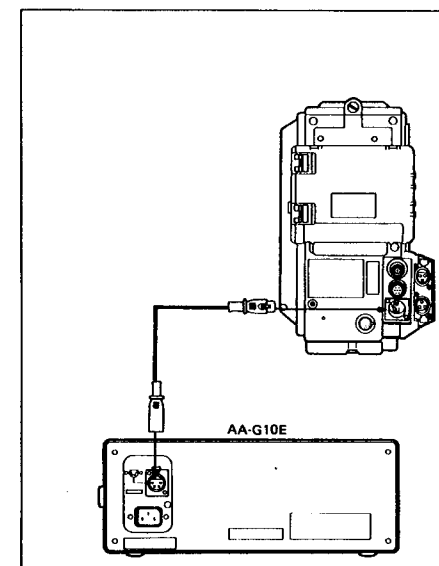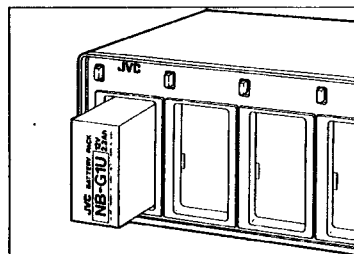

AA-G10E

RECHARGING THE NB-G1U BATTERY PACK

To charge the battery pack, use the exclusive AA-G10E adapter/battery charger (AC power). No other charger, including JVC's other models, can be used to charge the NB-G1U battery pack.
The AA-G10E can charge 4 battery packs at a time. Two different charging modes are available; normal charging and quick charging. In normal charging, 4 battery packs are charged in parallel and charging is completed in about 10 hours. In quick charging, charging is performed one battery at a time, taking about 90 minutes per battery pack. After the 4 battery packs have been charged in sequence, they are charged together in the normal charging mode for one hour.

1. Insert a battery pack into each compartment of the AA-G10E, contacts first and with the printed side to the left, until it locks into place.
2. Press the POWER button of the AA-G10E to ON.
3. Press either the QUICK CHARGE or NORMAL CHARGE button depending on the charging mode you select.
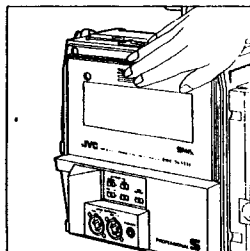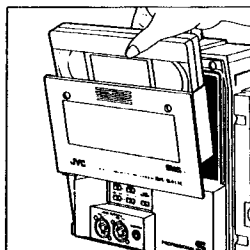

- If the BR-S411E is connected to the AA-G10E, make sure that its POWER button is OFF.
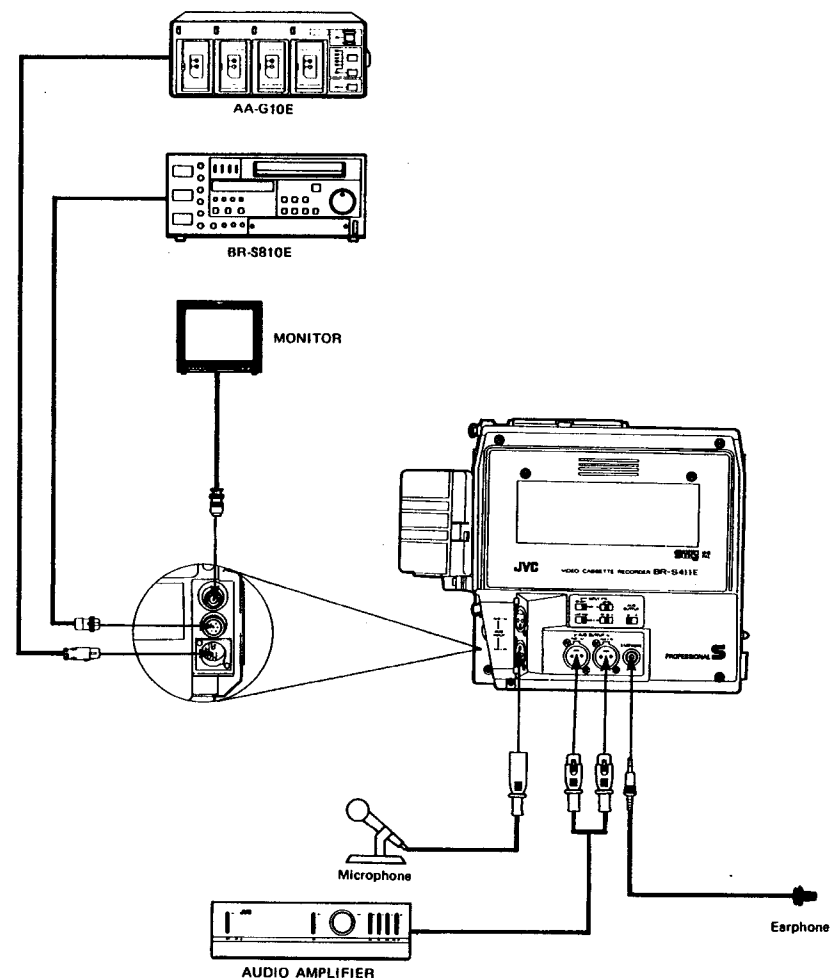- For more details about charging, refer to the instruction manual for the AA-G10E.

LOADING AND UNLOADING A CASSETTE

- Set the POWER button to ON and press the OPERATE button before inserting a cassette. If the AUTO OFF indicator should flash, do not insert a cassette, but put the machine in a dry place and wait until the indicator goes off.
- Before inserting a cassette, check to see if there is any tape slack.
- To remove the cassette, the power should be on, otherwise the tape is not unloaded.
- If a cassette is loaded near the end of the tape, tape loading may not be performed and the TAPE END indicator will remain lighted. If you wish to record onto the last few minutes of tape, remove the cassette and rewind the tape slightly by hand or with a tape winder.
- If the EJECT button does not function when the power is off, first switch on the power, then press the EJECT button.
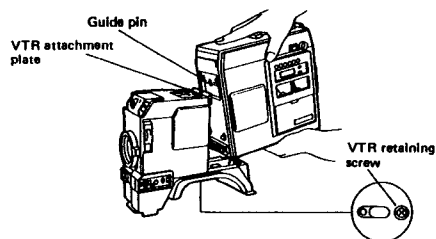
1. Press the EJECT button, and the cassette housing will open gently. Insert a cassette correctly so that the groove of the cassette is in line with the cassette guide of the cassette housing.
2. Press the housing cover down by hand at the top edge. The STOP LED will light.
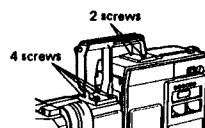
CONNECTIONS

AA-G10E

BR-S810E

MONITOR

Microphone

Earphone

AUDIO AMPLIFIER

ATTACHING A CAMERA

Guide pin
VTR attachment plate
VTR retaining screw

2 screws
4 screws

1. Remove the red cap from the camera connector.
2. Attach the camera to the BR-S411E by aligning the portions which engage.
3. Attach the camcorder carrying handle.

RECORDING

RECORDING PROCEDURE

1. Set the POWER switch to ON.
2. Press the OPERATE button.
   ● In the camcorder configuration, use the OPERATE switch on the camera (set it to ON). Power will be supplied to both the BR-S411E and the camera.
3. Slide the UNLOCK/LOCK knob to UNLOCK and open the control panel cover.
4. Press the EJECT button to open the cassette housing, and insert a cassette.
5. Press the REC and PLAY buttons to start recording.
   ● When using a camera, this engages the Record-Pause mode and actual recording will be started by the camera's trigger.
6. To stop recording temporarily, press the PAUSE/STILL button. To re-start recording, press the PLAY button.
   ● When using a camera, tape start/stop will be controlled by the camera's trigger. When the camera's power is

turned off, the recorder enters the Record-Lock mode so that it can enter the Record-Pause mode when the power is reapplied to the camera.
● Do not stop recording with the STOP button, otherwise the AEF mechanism will not function. (For the AEF mechanism, refer to page 12.)

Notes:
● Even if the recording mode is switched from VHS to S-VHS during recording in the VHS mode with a VHS cassette loaded, the mode will not change, but VHS recording will continue with the S-VHS mode indicator blinking.
● When using a camera, if recording is started immediately after the camera is switched from the power save mode to the standby mode, the picture will be distroted until the servo system locks. Before starting, allow for longer than 6 seconds after the camera is engaged in the standby mode.

AUDIO LEVEL ADJUSTMENT

The audio recording level can be adjusted independently for Hi-Fi L, Hi-Fi R, normal audio-1 and audio-2 channels.
1. Hi-Fi audio recording level adjustment
   Set the Hi-Fi REC select switch to ON and set the AUDIO OUT switch to Hi-Fi to switch the audio level meters to the Hi-Fi level mode. Turn the AUD REC LEVEL Hi-Fi L or R control unit the corresponding audio meter deflects to "0" with the highest level input signal.
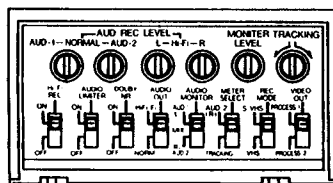
2. Normal audio recording level adjustment
   Set the AUDIO OUT switch to NORM to switch the audio level meters to the normal audio level mode. Turn the AUD REC LEVEL NORMAL AUD-1 or AUD-2 control until the corresponding audio meter deflects to "0" with the highest level input signal.
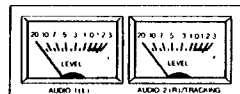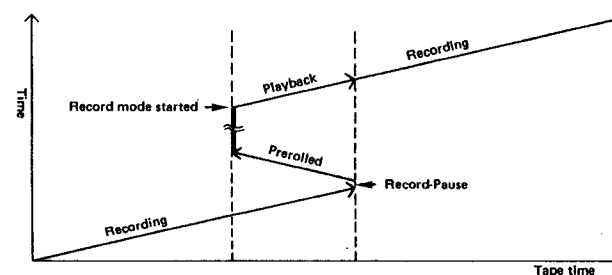

Notes:
● When monitoring the sound with an earphone, the earphone output can be switched among audio-1(L), audio-2(R) and a mixture of the two with the AUDIO MONITOR select switch.
● It is recommended, especially in live recording, that the AUDIO LIMITER switch be set to ON to avoid overlevel recording.
● Set the DOLBY NR switch as required.

AUTOMATIC EDITING FUNCTION

The AEF mechanism helps prevent picture distortion at edit points in assemble recording. When the PAUSE/STILL button is pressed during recording, the tape is rewound by about 1.3 seconds of program time and stops in the Record-Pause mode. When recording is re-started by pressing the PLAY button, recording does not take place for the first 1.3-second period, during which tape running is stabilized for smooth transition to the next edit.


Time
Record mode started
Playback
Recording
Prerolled
Record-Pause
Recording
Tape time

Notes:
● If recording is re-started from the Stop mode, rainbow noise will be introduced at the transition between the previous and new recordings because of overlapped recording.
● Do not move the unit violently in the Record-Pause mode, otherwise frames may be missed.

AUDIO DUBBING

The BR-S411E has an audio dubbing function which enables the normal audio-2 soundtrack to be replaced with new material.
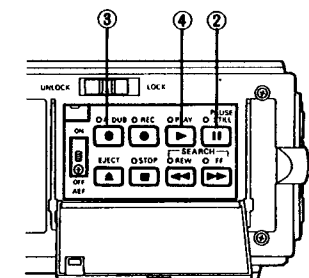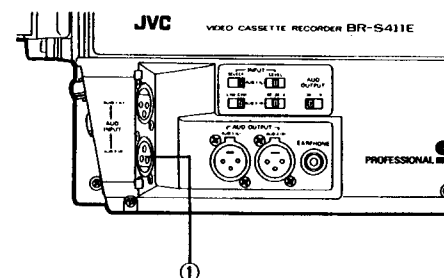

①Connect a sound source to the MIC AUD-2(R) jack or the AUDIO IN AUD-2(R) connector. Adjust the recording level.
②Play back the tape and press the PAUSE/STILL button at the position from which you want to start audio dubbing.
③Press the PAUSE/STILL button while holding the A DUB button depressed.

④Press the PLAY button to start audio dubbing. Press the PAUSE/STILL button to stop audio dubbing temporarily. To end audio dubbing, press the STOP button.

PLAYBACK
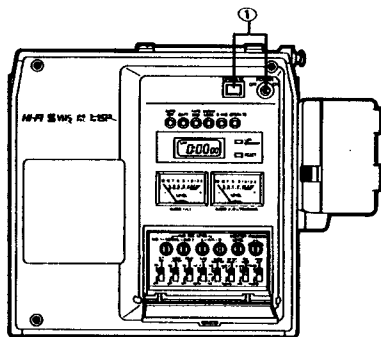
① Set the POWER switch to ON and press the OPERATE button.
② Insert a recorded cassette correctly.
③ Press the PLAY button to start playback.
④ Press the STOP button to stop playback.
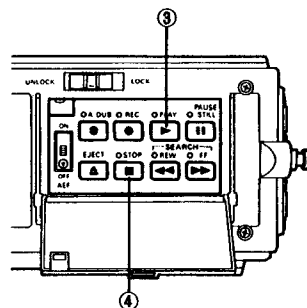
**Note:**
- If excessive noise bars appear or the pictures look grainy, adjust the TRACKING control.

TRACKING ADJUSTMENT

① Set the METER SELECT switch to TRACKING.
② Play back the tape.
③ While referring to the AUDIO-2(R)/TRACKING meter, turn the TRACKING control slowly so that the meter makes the maximum deflection to the right.
- Normally set the TRACKING control to its center position.
④ After completion of tracking adjustment, re-set the METER SELECT switch to AUD-2(R) so that the meter will function as an audio level meter.
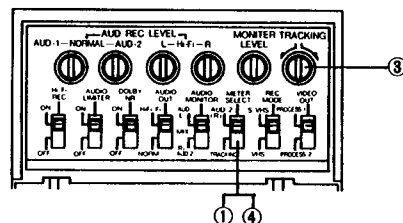
STILL AND FRAME ADVANCE
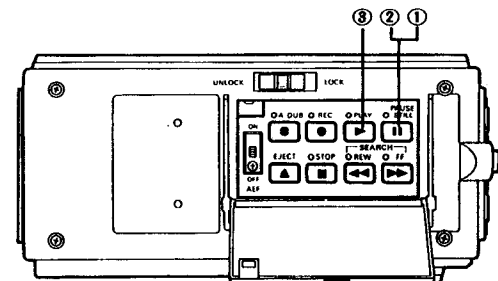
① Press the PAUSE/STILL button during playback to view a still picture.
② To advance the still picture, press the button again.
- Holding the PAUSE/STILL button depressed will continuously advance the still picture one frame at a time to give a slow-motion effect.
  This function is not available with the remote control unit's (optional) PAUSE button.
③ To resume normal playback, press the PLAY button.

Notes:
- To protect the tape and video heads, the tape is automatically fed for several frames if the Still mode continues for about 3 minutes and then again after another 3 minutes. If the Still mode continues for about 9 minutes, the Stop mode will be engaged automatically.
- Still pictures may contain some noise or vibrate vertically. This is not due to any defect of the unit.
- The FRAME ADVANCE mode cannot be engaged by the remote control unit (optional).

SHUTTLE SEARCH & REW/FF

When the REW or FF button is pressed in the stop mode, normal rewind or fast forward takes place. When these buttons are pressed in the Play or Still mode, the tape runs at about 9 times normal speed in the corresponding direction. The buttons can be locked and the indicator lights. You can follow the speed-up picture on the monitor screen.

SPECIFICATIONS

GENERAL

Format	: VHS/S-VHS Europe standard
Video signal system	: PAL-type colour signal/ PAL-type Y/C signal
Tape speed	: 23.39 mm/sec
Recording time	: 180 min. with JVC SE-180 or E-180
Power requirement	: DC 12 V
Power consumption	: 16 watts
Dimensions	: 297(W) x 240(H) x 137(D) mm
Weight	: 4.0 kg (without accessories)
Operating temperature	: 0°C to 40°C, Non-water proof
Storage temperature	: −20°C to 50°C

VIDEO

Recording and Playback system	: Rotary two-head helical scanning system
Luminance	: FM recording
Colour	: Phase shift, converted sub-carrier direct recording
Video output	
Line	: 1.0 Vp-p, 75 ohms, unbalanced
Y/C	: Y: 1.0 Vp-p, 75 ohms, unbalanced
	: C: 0.3 Vp-p (Burst), 75 ohms, unbalanced

Video S/N	: More than 45 dB
Resolution	
S-VHS mode	: 400 lines
VHS mode	: 250 lines

AUDIO

AUDIO INPUT	: −20/+4 dB, 10 k-ohms, balanced, XLR
(Microphone)	: −60 dB, 3 k-ohms, balanced, XLR
Line output	: −6/−20 dB, 600 ohms, balanced XLR
Earphone	: −25 to −45 dBs variable, 8 ohms load unbalanced
Frequency response	: 40 to 12,000 Hz (Normal)
	: 20 to 20,000 Hz (Hi-Fi)
Audio S/N	: 46 dB (Normal/NR-ON)/
(at 3 % distortion)	42 dB (Normal/NR-OFF)
Audio dynamic range	: 80 dB (Hi-Fi)
Wow and flutter	: 0.007 % WRMS (Hi-Fi)
ACCESSORIES	: Battery pack (NB-G1U) x 1, Battery holder x 1